

diabetes & your eyes

People with diabetes have an increased risk of developing eye complications which, if left untreated, can lead to poor vision and blindness. However, 98% of serious vision loss from diabetes can be prevented with regular eye examinations and early treatment. The earlier the treatment, the better the result.

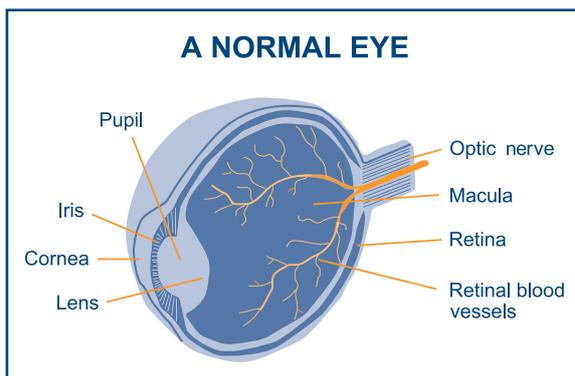


Diagram reproduced from Management of Diabetic Retinopathy: a guide for general practitioners, NHMRC, published by Commonwealth Department of Health and Family Services, June 1997.

How does the eye work?

The eye works a bit like a camera. Light enters through the cornea and the pupil before passing through the lens which focuses the light onto the retina. Special cells in the retina detect the light, forming the focused image like the film in the camera. The image is sent along the optic nerve to the brain. At the centre of the retina is the macula which is responsible for the 'seeing' part of our central vision while the retina is responsible for 'seeing' from the edges of our vision.

How can diabetes affect the eyes?

High blood glucose levels can cause changes in the shape of the lens which can temporarily cause blurring of your vision. This commonly occurs before being diagnosed with diabetes or when diabetes isn't well managed. The blurriness usually disappears when blood glucose levels are reduced through appropriate treatment. Therefore getting new glasses should be delayed until blood glucose levels are back within the recommended range.

High blood glucose levels for long periods of time can increase the risk of more serious eye problems in people with diabetes, including:

- > Retinopathy
- > Cataracts
- > Macular oedema
- > Glaucoma

As many people with diabetes do not notice changes in their vision until the condition is very serious, it is essential to have regular eye examinations so that problems can be detected early and treated promptly.



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Retinopathy

- *Non-proliferative (background)* – The longer you have diabetes, the greater the risk of small blood vessels at the back of the eye being damaged by high blood glucose and high blood pressure. This can result in leakage and often progresses to blockage of the vessels that supply the retina with nutrients. This stage is called *non-proliferative* or *background* retinopathy and there may be no noticeable change in your vision.
- *Proliferative* – Without early detection and treatment, non-proliferative diabetic retinopathy can progress and the retina may grow new blood vessels. This advanced stage is called *proliferative* retinopathy. The new blood vessels are weaker and can bleed onto the retina or the vitreous, the jelly-like centre inside your eye. Vision can be affected, sometimes seriously and suddenly.

The growth of new vessels may also lead to developing scar tissue which can cause further problems such as a retinal detachment. Once these changes occur it is hard to restore any lost vision and the resulting damage can lead to blindness. Sometimes new vessels may grow on the iris and this can lead to neovascular glaucoma (see below).

Macular oedema

Blood vessels in the macula, the central area of the retina, can leak fluid causing swelling and can result in central vision loss.

Cataracts

Changes or problems in the lens can result in clouding and decreased vision known as cataracts. Although ageing is the main risk factor, people with diabetes tend to develop cataracts more rapidly and at a younger age.

Glaucoma

Glaucoma is an eye disease in which the optic nerve is damaged. The progression of glaucoma is usually slow. Glaucoma can affect anyone but it appears to be more common in people who have diabetes. People with diabetes may also have a less common form of glaucoma which develops as a complication of severe diabetic retinopathy – this is called neovascular glaucoma.

What are the symptoms of diabetes-related complications?

Often diabetes-related eye complications have no signs or symptoms and there may be no obvious deterioration in vision until the condition is quite advanced. Changes in vision may also be so gradual that you do not notice it for some time.

Where signs and symptoms are present, they can include:

- > Floaters and flashes
- > Poor night vision
- > Sensitivity to light and glare
- > Distortion or 'holes' in vision
- > Blurry, blocked or dim vision
- > Halos around lights or sparkles
- > Need for brighter light for reading and other activities
- > Frequent changes in eyeglass prescriptions

Any change in your vision should be checked by your optometrist, ophthalmologist or doctor.

Caring for your eyes

- Have an eye examination by an eye care professional when you are first diagnosed with diabetes and then at least every two years (or more often as indicated by your doctor or eye care professional).*
- Examination of your eyes involves viewing the back of your eyes. This will involve adding eye drops to dilate the pupils or taking a photograph of the back of your eyes.
- If retinopathy is detected, you will need to have your eyes examined more often and you may be referred to a medical eye specialist (ophthalmologist).
- Notify your eye care professional immediately if you notice any changes in your vision.
- Keep your blood glucose levels, HbA1c, blood pressure and cholesterol within the recommended ranges. High blood glucose, cholesterol and blood pressure increase the risk of developing eye complications as well as increasing the severity of eye complications.
- Have regular health checks including blood pressure readings, cholesterol measurements and kidney function tests as recommended by your diabetes care team. It is important that you discuss the results with your doctor and seek further advice for any results that are not in the recommended range.
- If you smoke, stop!
- Maintain a lifestyle that includes regular physical activity and healthy eating to better manage your blood glucose levels.
- Always take your medications as instructed by your doctor.

Can diabetes-related eye complications be treated?

Most eye complications can be treated successfully if detected early. Early detection and treatment can also prevent eye complications from getting worse. However, treatment generally cannot restore vision once it has been lost. Regular eye examinations and early treatment are therefore important to prevent vision loss.

The most common treatments for eye complications are:

- > **Laser** – This involves the use of a special form of light of a specific wavelength that is able to heat retinal tissue and blood vessels. This can minimise leakage from blood vessels and cause regression of any new and fragile vessels.
- > **Surgery** – A surgical procedure called a *vitrectomy* is used in cases of advanced retinopathy. It involves the use of fine instruments inside the eye with the aim of repairing the most severe damage caused by diabetic retinopathy.
- > **New treatments** – If your condition is not responding to other treatments, your eye care professional can give you more details of new treatments that are constantly being developed.

* Frequency of examination may vary with different people eg: people with type 1 diabetes, children, women during pregnancy and people who already have eye complications.

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Who will look after my eyes?

Your eye health care team consists of your general practitioner (GP), optometrist and ophthalmologist.

General practitioner

Your GP will support you in your day-to-day diabetes management and will be the contact point for referral to other specialist health care team members as required.

Optometrist

An optometrist may be involved in the ongoing management of your eye health. An optometrist will diagnose and manage diabetes-related eye complications. If changes are detected by your optometrist, this will be reported to your GP and if necessary you will be referred to an ophthalmologist.

To find your nearest optometrist visit www.optometrists.asn.au.

Ophthalmologist

An ophthalmologist (medical eye specialist) may also be involved in the ongoing management of your condition. An ophthalmologist will be involved if specialised medical care or treatment is required, such as laser surgery or other specialist procedures to improve vision or to prevent loss of vision.

For more information about ophthalmologists visit www.ranzco.edu.

For further information contact:

Vision 2020 Australia www.vision2020australia.org.au

This resource was developed in consultation with Vision 2020 Australia and members including the Optometrists Association Australia, The Royal Australian and New Zealand College of Ophthalmologists and the Royal Victorian Eye and Ear Hospital.

Would you like to join Australia's leading diabetes organisation?

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For more information phone **1300 136 588** or visit your State/Territory Organisation's website:

ACT	www.diabetes-act.com.au	NSW	www.australiandiabetescouncil.com
NT	www.healthylivingnt.org.au	QLD	www.diabetesqueensland.org.au
SA	www.diabetessa.com.au	TAS	www.diabetestas.com.au
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